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1. EXECUTIVE SUMMARY

L. Robert Kimball & Associates, Inc. (Kimball) is pleased to provide the state of Missouri's Office of Administration with its Costs and Revenues Associated with a Statewide IP-Enabled Network report. This is the last of four reports delivered as part of the statewide 9-1-1 assessment project.

The first report entitled *"Current PSAP and 9-1-1 Infrastructure"* assesses what currently exists in Missouri.

The second report entitled *"Recommendations for a statewide IP-enabled network,"* while assuming the statewide network would result from the State's *RFP B2Z06066 - Next Generation Network*, provides additional options for procurement from within Missouri's existing resources, recommends a milestone-based implementation, and identifies the issues that could become roadblocks.

The third report entitled *"PSAP Needs Analysis"* builds on the information gathered for the current infrastructure report and identifies what counties and PSAPs would need in terms of technology and revenues to interface from the existing 9-1-1 Customer Premises Equipment (CPE) to a new Internet Protocol (IP)-enabled 9-1-1 infrastructure.

This fourth and last report builds on the information gathered for the previous reports. While Kimball assumes the costs associated with a statewide network would be identified in the bids received from the State's *RFP B2Z06066 - Next Generation Network* (See Appendix A) procurement, we estimate the cost to link the Local Exchange Carriers' (LEC) 9-1-1 tandems/Selective Routers and Automatic Location Identification (ALI) databases to the State's network.

Finally, we have recommended a funding mechanism to generate revenues for this. The funding mechanism incorporates all four reports and is intended to enable the State to achieve its stated goals in a way that does not create financial hardship for the counties or PSAPs.

2. METHODS

Kimball drew on the expertise and industry experience of its staff, particularly the staff assigned to Missouri's project. Our company has been involved in the design and implementation of new Enhanced 9-1-1 (E9-1-1) systems and IP-enabled E9-1-1 systems for local and state jurisdictions across the United States. Our internal expertise includes 9-1-1 network design, hardware integration, mapping technologies, and systems installation, which translates into a unique capability with particular benefit to Missouri's statewide 9-1-1 assessment project.

We used common practices in the telecommunications field to analyze information specific to Missouri. Where Missouri-specific information was not available or not reliable, we relied on our industry knowledge and our expertise gained as a result of working on similar projects for other states.

Kimball developed the costs outlined in this report from the recommendations presented in the report entitled "*Recommendations for a Statewide IP-Enabled Network.*".

Since information on the State's award on *RFP B2Z06066* is not yet available to us, the cost estimates in this report should be considered reasonable budgetary figures for planning purposes. The costs will vary contingent on the solution that is selected from the Request for Proposal (RFP) process.

2.1 STATEWIDE IP INFRASTRUCTURE

During the July 19, 2006 Kick-Off meeting held between the State of Missouri's 9-1-1 coordinator, Rose International, and Kimball, the parties agreed to proceed on the assumption that costs associated with a statewide network would be identified in the bids received from the State's *RFP B2Z06066 - Next Generation Network* procurement.

The purpose of this report is to provide the State with budgetary figures to link the LECs' 9-1-1 tandems/Selective Routers and ALI Databases to the State's IP network.

2.2 LEC CONNECTIVITY

The State's intent, as communicated to us at the July 19, 2006 project kick-off meeting, is that the State's IP network would have a Point of Presence (POP) in each County Seat (See Appendix B). On that basis, Kimball's report entitled *"Recommendations for a Statewide IP-Enabled Network"* identified what would be required to connect each Selective Router and ALI Database to the State's IP backbone and what it would take to connect the existing PSAPs to it. The information developed in the *Recommendations* report is the basis for the cost estimates presented in this report.

Each Selective Router would be connected to two County Seats near the location of the Selective Router. Equipment for the Selective Router side as well as at the County Seat has been used to develop costs. Each Selective Router would require a gateway/router to convert the Centralized Automatic Message Accounting (CAMA) signaling sent from the Selective Router to the IP network. This would then be connected to another router that would connect to the statewide network.

For each ALI Database there are two groups. The four mirrored ALI Databases each require a single connection. Three of these four are outside of the state. The cost estimates for these are low for the purpose of this report. The cost of a broadband connection to these out-of-state ALI Databases would normally be very expensive if they are priced using the traditional mileage method. According to the AT&T website, one T-1 circuit from Dallas to St. Louis would cost $14,033.80 per month.

Each of these ALI Databases has a connection in Missouri with the LEC that owns them. This connection should be used where possible, or special order pricing should be negotiated with the LEC.

The second set of ALI Databases are four stand-alone systems. Each of these databases should have two redundant and diverse connections to the network. This is what Kimball used to estimate the costs.

2.3 STATEWIDE ALI DATABASE

Although statewide ALI was beyond the scope of Missouri's statewide 9-1-1 assessment project, we take this opportunity to present budgetary figures in anticipation that the State might decide to provide that service. LECs price their ALI Database services on the basis of the number of records in the database. Kimball began with the wire line subscriber count reported to the Federal Communications Commission (FCC) and published in the *Report of Local Telephone Competition: Status as of December 31, 2005*, increased it by 50 percent to account for multi-line telephone systems, wireless shell records, and other such items, then multiplied the result by the per record cost used by a national ALI Database vendor.

2.4 ALTERNATE OPPORTUNITIES

This report deals exclusively with the State's potential costs. PSAP costs to interconnect are presented in the report entitled *"PSAP Needs Analysis."* If the State were to subsidize the cost to provide interconnection for counties that do not presently have 9-1-1, the costs outlined in that report could be the basis for planning.

2.5 LEGISLATION AND FUNDING

Missouri's statewide 9-1-1 assessment project included a review of existing 9-1-1 statutes, including those that deal with funding for 9-1-1. We began by reviewing and commenting on the work that is underway with the Governor's Advisory Committee for 9-1-1 Service Oversight. It was an iterative process, and we offered input and recommendations to the Missouri 9-1-1 coordinator under separate cover, because they remain working documents under the oversight of the committee. We note that this process occurred early in the project, before our data gathering and analysis was complete. There may be additional legislative changes identified depending on what the State decides to do with Kimball's recommendations.

In preparation for recommending a new funding mechanism for 9-1-1, Kimball reviewed the models that exist in other states, including Virginia, Maryland and Delaware. The two options we have recommended combine aspects of each of these approaches with the state of Missouri's unique vision and needs.

We identified the number of wireline and wireless subscribers published in the FCC's *Report of Local Telephone Competition: Status as of December 31, 2005*, and estimated revenues on the basis of several different surcharge rates.

3. FINDINGS

3.1 LEC CONNECTIVITY

Kimball estimates that connection equipment for the Selective Routers will cost approximately $2,730,000. In addition there will be about $1,344,000 in annual recurring costs. These costs include routers, gateways, and connectivity.

Kimball estimates that connection equipment for the ALI Databases will cost approximately $189,000. In addition there will be about $336,000 in annual recurring costs. Again, these costs include routers, gateways, and connectivity.

The cost estimate above reflects the two groups of ALI Database that serve Missouri. The first is the four mirrored ALI Databases, each of which requires only a single connection; three of these four are located outside of Missouri. The cost estimates for these are low. If broadband were used to connect these out-of-state ALI Databases, the cost would be prohibitive if based on the traditional mileage method. According to the AT&T website, one T-1 circuit from Dallas to St. Louis would cost $14,033.80 per month. This rate applies to the inter-office channel and does not include access or other charges that may apply. The second group of ALI Databases is comprised of the four stand-alone systems. Each of these databases should have two redundant and diverse connections to the network. Kimball used this recommendation to estimate the costs.

Lastly, we note for the record that the LECs may have additional service charges to make the necessary connections between their Selective Routers and ALI Databases and the State backbone network. These possible charges do not exist today so there is no way to estimate them.

3.2 STATEWIDE IP INFRASTRUCTURE

As noted previously, Kimball assumes that the award resulting from *RFP B2Z06066* would be the backbone for 9-1-1. We have not attempted to presume what network, technologies, and topology solutions a successful respondent may propose.

The cost elements and cost estimates in this report are contingent on the network type proposed by the winning bidder. Different types of networks require different types of equipment and connectivity methods, so the final and true costs may be different from what Kimball has identified. In addition, different network designs could affect equipment elements and connectivity segments, and this could also result in final and true costs different from what Kimball has estimated.

3.3 ALTERNATE OPPORTUNITIES

The State's 9-1-1 coordinator defined alternate opportunities as ways in which the State could help bring 9-1-1 to the counties that do not presently have it, and promote regional or consolidated PSAP initiatives where that would help increase efficiency and reduce costs.

There are 21 counties in Missouri that do not have 9-1-1 services. If each of these counties were to implement its own 9-1-1 service, it would need 9-1-1 equipment, personnel, and services in addition to other non-9-1-1 specific facilities, services, and equipment needed to operate a fully functional PSAP. In addition, these areas may need to adopt standardized street addressing, and would have to develop the databases that are needed to make enhanced 9-1-1 work.

3.3.1 9-1-1 CPE

As part of this project Kimball researched the budgetary costs that one might expect to incur for 9-1-1 CPE that would not only meet today's requirements but also have the capacity to evolve to accommodate future technologies in an efficient and cost effective way. The table below provides some budgetary 9-1-1 CPE prices.

Number of 9-1-1 Positions	Cost
Two	$121,000
Four	$148,000
Six	$205,000
Ten	$315,033

The table below shows the difference between the cost of each of the counties implementing 9-1-1 service by purchasing its own CPE and by sharing facilities and equipment or by sharing the backroom CPE in a virtual PSAP configuration.[1]

[1]Counties sharing a virtual PSAP would incur some additional cost for connectivity and remote connection.

Number of Individual Counties	Number of PositionsEach	Cost	Number of Counties SharingEquipment	Number of Positions	Cost
One	Two	$121,000	One	Two	$121,000
Two	Two	$242,000	Two	Four	$148,000
Six	Two	$726,000	Six	Ten	$309,240

If a currently unserved county were to join with an existing PSAP, there may not be a separate cost to connect. It would depend on the results of a traffic study of trunks in the current PSAP, and a calculation of the number that would be required for them to add the new jurisdiction.

If a currently unserved county or group of counties were to build a new PSAP, the costs associated with that would have to be determined on the basis of the specific situation. Factors would include:

- The location of the new PSAP relative to the closest point where the State's IP network drops into a County Seat;
- Construction costs for the new PSAP facility, which was beyond the scope of this project;
- CPE costs; and
- Ancillary hardware, software, and infrastructure costs that were beyond the scope of this project.

We note that there may be costs associated with converting from rural to standard street addressing if street addressing is not already in place. In addition, there will be costs associated with developing the Master Street Address Guide (MSAG) and databases. These costs were outside the scope of this project.

In addition to the PSAP CPE charge found above, other charges may apply. The formula used for the cost estimates presented in the table below is defined as follows:

Divide the county's population by two to determine the estimated number of subscribers. Divide the estimated number of subscribers by 1,000 and multiply the result by $225.00. The resulting number is the estimated Monthly Recurring Cost (MRC).

These figures are based on what Kimball has found to be the average cost on a national level.

Estimated E 911 Wireline Cost Per County

	10 Percent Population Increase for 2006	MRC
MISSOURI		
Adair County	27,475	$3,090.90
Andrew County	18,141	$2,040.89
Atchison County	7,073	$795.71
Audrain County	28,438	$3,199.31
Barry County	37,411	$4,208.74
Barton County	13,795	$1,551.95
Bates County	18,318	$2,060.81
Benton County	18,898	$2,126.03
Bollinger County	13,232	$1,488.59
Boone County	148,999	$16,762.43
Buchanan County	94,598	$10,642.25
Butler County	44,954	$5,057.29
Caldwell County	9,866	$1,109.91
Callaway County	44,843	$5,044.79
Camden County	40,756	$4,585.06
Cape Girardeau County	75,562	$8,500.76
Carroll County	11,314	$1,272.77
Carter County	6,535	$735.20
Cass County	90,301	$10,158.89
Cedar County	15,106	$1,699.46

Chariton County	9,282	$1,044.20
Christian County	59,714	$6,717.77
Clark County	8,158	$917.73
Clay County	202,407	$22,770.74
Clinton County	20,877	$2,348.65
Cole County	78,537	$8,835.38
Cooper County	18,337	$2,062.91
Crawford County	25,084	$2,822.00
Dade County	8,715	$980.47
Dallas County	17,227	$1,938.05
Daviess County	8,818	$991.98
DeKalb County	12,757	$1,435.13
Dent County	16,420	$1,847.22
Douglas County	14,392	$1,619.15
Dunklin County	36,471	$4,102.93
Franklin County	103,188	$11,608.62
Gasconade County	16,876	$1,898.57
Gentry County	7,547	$849.05
Greene County	264,430	$29,748.39
Grundy County	11,475	$1,290.96
Harrison County	9,735	$1,095.19
Henry County	24,197	$2,722.13
Hickory County	9,834	$1,106.33
Holt County	5,886	$662.19
Howard County	11,233	$1,263.74

Howell County	40,962	$4,608.20
Iron County	11,767	$1,323.75
Jackson County	720,368	$81,041.40
Jasper County	115,155	$12,954.89
Jefferson County	217,909	$24,514.75
Johnson County	53,084	$5,971.93
Knox County	4,797	$539.67
Laclede County	35,764	$4,023.48
Lafayette County	36,256	$4,078.80
Lawrence County	38,724	$4,356.50
Lewis County	11,543	$1,298.63
Lincoln County	42,838	$4,819.32
Linn County	15,129	$1,702.06
Livingston County	16,014	$1,801.55
McDonald County	23,849	$2,683.02
Macon County	17,338	$1,950.55
Madison County	12,980	$1,460.25
Maries County	9,793	$1,101.75
Marion County	31,118	$3,500.76
Mercer County	4,133	$464.93
Miller County	25,920	$2,916.05
Mississippi County	14,770	$1,661.59
Moniteau County	16,310	$1,834.84
Monroe County	10,242	$1,152.24

Montgomery County	13,350	$1,501.83
Morgan County	21,240	$2,389.49
New Madrid County	21,736	$2,445.30
Newton County	57,900	$6,513.71
Nodaway County	24,103	$2,711.61
Oregon County	11,378	$1,280.07
Osage County	14,368	$1,616.42
Ozark County	10,496	$1,180.82
Pemiscot County	22,052	$2,480.82
Perry County	19,945	$2,243.84
Pettis County	43,343	$4,876.12
Phelps County	43,808	$4,928.34
Pike County	20,186	$2,270.94
Platte County	81,159	$9,130.40
Polk County	29,691	$3,340.26
Pulaski County	45,282	$5,094.17
Putnam County	5,745	$646.35
Ralls County	10,589	$1,191.22
Randolph County	27,129	$3,052.05
Ray County	25,689	$2,890.06
Reynolds County	7,358	$827.76
Ripley County	14,860	$1,671.74
St. Charles County	312,271	$35,130.52
St. Clair County	10,617	$1,194.44
Ste. Genevieve County	19,626	$2,207.95

St. Francois County	61,205	$6,885.57
St. Louis County	1,117,947	$125,768.98
Saline County	26,132	$2,939.81
Schuyler County	4,587	$516.04
Scotland County	5,481	$616.65
Scott County	44,464	$5,002.22
Shannon County	9,156	$1,030.10
Shelby County	7,479	$841.38
Stoddard County	32,676	$3,675.99
Stone County	31,524	$3,546.43
Sullivan County	7,941	$893.35
Taney County	43,673	$4,913.25
Texas County	25,303	$2,846.62
Vernon County	22,499	$2,531.18
Warren County	26,978	$3,034.97
Washington County	25,678	$2,888.82
Wayne County	14,585	$1,640.80
Webster County	34,150	$3,841.82
Worth County	2,620	$294.77
Wright County	19,751	$2,221.93
St. Louis City	383,008	$43,088.39

3.4 STATEWIDE ALI

As noted above, Kimball took the opportunity to offer some budgetary information in anticipation that the State might decide to provide ALI Database services.

The LECs would not provide us with the number of records in their databases. Kimball's estimate is based on the wireline subscriber count reported to the FCC and published in the *Report of Local Telephone Competition: Status as of December 31, 2005*. This gave us the subscriber count, but traditionally there are more records in the database than simple residential subscribers. For example, there are multi-line telephone systems, wireless shell records and other such issues. Kimball's estimated record count begins with the wireline subscriber count contained in the FCC's report and increases it by 50 percent. This is the number used to establish a cost for statewide ALI.

Based on the formula stated in the Methods section of this report, a statewide ALI Database would cost approximately $2,943,378 a year in recurring costs. There may be additional cost from the various LECs for them to provide customer record information, and daily changes to the statewide ALI Database.

3.5 LEGISLATION AND FUNDING

As mentioned in the previous section, the Governor's Advisory Committee for 9-1-1 Service Oversight has been working on updating the body of law for some months. Kimball reviewed their work. Where we had specific recommendations or comments, we made them. All our comments were accepted and incorporated into the drafts. Kimball's input into Missouri's process was provided to the Missouri 9-1-1 coordinator under separate cover, because the drafts remain working documents under the oversight of the committee. The end result of this collaborative effort will be specific proposals for legislation presented to the Governor and the General Assembly during the upcoming session.

Information from the Auditor's website, from the PSAPs, and the LECs, yielded 9-1-1 revenue information for 87 of the 115 counties. We were unable to obtain information for five counties that fund 9-1-1 through General Revenues. In addition, there was one county (Jasper) that we were not able to contact, and, of course, the 21 counties that do not have 9-1-1 services. The current aggregate 9-1-1 revenue for the counties for which we have information is approximately $34,143,992.

Kimball found that the public would benefit greatly if the State were to adopt a statewide funding mechanism for 9-1-1. A statewide funding source would enable the counties that do not presently have 9-1-1 to implement the service. It would enable the State to provide financial assistance in the form of grants so that counties could afford to make the necessary upgrades to their equipment and technology. It would enable the State to provide a financial incentive for regionalization or consolidation. It would enable the State to help modernize the enhanced 9-1-1

delivery system and increase network resiliency, capacity and functionality. All of these possibilities open up with a statewide funding mechanism. The public is the ultimate beneficiary.

4. RECOMMENDATIONS

4.1 LEC CONNECTIVITY

Each of the LECs ALI Databases currently has a connection at one of the controlling LEC's locations in Missouri. Kimball recommends that the State use this connection where possible, or negotiate special order pricing with the LEC.

4.2 STATEWIDE IP INFRASTRUCTURE

The statewide IP-enabled network is being developed through the open procurement process currently underway with *RFP B2Z06066*. We do not know what that final network will be at this time, and we must hedge any recommendations accordingly. The RFP process that is underway is also developing the cost of that network.

Kimball recommends that the state of Missouri's General Assembly enact a statewide funding mechanism for E9-1-1, and use the revenues generated to pay the costs of connectivity between the LECs' 9-1-1 infrastructure (Selective Routers and ALI Databases) and the State's IP backbone.

In addition, Kimball recommends that the State plan to install two geographically remote monitoring servers to monitor and back up the network. These monitoring servers will cost approximately $100,000.

4.3 ALTERNATE OPPORTUNITIES

Kimball recommends that the State adopt a statewide E9-1-1 funding mechanism and allocate a portion of it to subsidize the 21 counties with no 9-1-1. We recommend that the remainder of it be given back to the counties as grants. Our specific recommendations are included in this report as Appendix A.

4.4 STATEWIDE ALI

Kimball recommends that the state of Missouri consider providing ALI Database services at the State level. This recommendation is contingent on having a statewide funding mechanism in place for 9-1-1.

It is our opinion that the State should consider this only after the statewide IP-enabled network becomes operational and all existing PSAPs are interconnected, and 9-1-1 services has been implemented in the 21 counties that do not currently have it.

Our reasoning for the latter recommendation is purely to ensure that the most important funding needs are addressed before taking on the additional cost and the additional work.

4.5 LEGISLATION AND FUNDING

As mentioned in Section 2.5, our recommendations for legislation have been provided directly to the committee that has been working on updating existing 9-1-1 statutes.

Appendix C contains Kimball's recommendations for a new funding mechanism.

Appendix D projects revenues based on various surcharge rates.

GLOSSARY

ALI	Automatic Location Identification
CAMA	Centralized Automatic Message Accounting
CPE	Customer Premises Equipment
E9-1-1	Enhanced 9-1-1
FCC	Federal Communications Commission
IP	Internet Protocol
LEC	Local Exchange Carriers
MSAG	Master Address Street Guide
MRC	Monthly Recurring Cost
POP	Point of Presence
RFP	Request for Proposal

APPENDIX A

Excerpt Summary of RFP B2Z06066 - Next Generation Network

RFP B2Z06066 - Next Generation Network – Executive Summary

The Missouri Office of Administration (OA) must provide a more robust network to support Missouri state government's growing needs in health care collaboration, public sector collaboration, education collaboration, public safety collaboration, and economic development collaboration. OA will use a combination of state assets, other public entity assets, and services provided by the private sector to develop a statewide converged network (Next Generation Network) that provides government initiatives with more bandwidth and services.

Goals
The State of Missouri intends to pursue a comprehensive telecommunications and networking strategy that allows a broad based approach to providing the greatest possible leverage of the state's information technology assets.

Management Goals

a. The creation of a cost-effective, secure telecommunications system that lays the foundation for a statewide converged voice, video and data network;

b. Obtain cost-effective telecommunications services to control statewide expenditures;

c. Reduce communication costs where possible;

d. Meet current and future state customer business needs;

e. Improve inter-agency communication;

f. Provide better services to communicate with citizens of Missouri;

g. Support cross-agency initiatives.

Technology Goals

a. Develop a statewide infrastructure that supports convergence of voice, video and data to realize the benefits of convergence;

b. Improve the effectiveness of voice and data services;

c. Centralize provisioning of telecommunication services to eliminate redundancy and reduce agency silos;

d. Update statewide technical standards to enable seamless communication;

e. Secure the state's networks to protect data and technology assets;

f. Support movement to IP telephony, as appropriate based on business needs, to take advantage of new IP services and applications;

g. Introduce innovation throughout government.

Vision

Governments are using the convergence of voice and data networks and applying Internet business solutions and productivity applications onto the converged network to dramatically reduce operational costs, increase organizational productivities, deliver public services quickly, efficiently and more effectively and drive new opportunities for economic development.

The convergence of voice and data communications combined with the innovative use of Internet Protocol (IP) technology and applications will allow the State of Missouri to make cost effective and efficient strides in achieving its core missions and goals. For clarification throughout this RFP, IP Communications – also known as "convergence" – refers to the integration of data, voice and video solutions onto a single, Internet Protocol (IP) based network.

The state, working with providers, has historically provided communications solutions to state employees to meet their daily functional needs. Now, with the availability of nearly 1,700 miles of untapped state network fiber provided by the Missouri Department of Transportation (MoDOT) and the opportunity to also leverage rural electric cooperative, wireless and satellite communications for remote areas and business continuity reasons, the State of Missouri's vision is to move into the 21st century of communications solutions and be a leader among states in this arena.

The state understands the migrations from disparate data and voice networks to an enterprise converged network will result in cost takeout and increased revenue and economic benefits. The state's goal is to achieve cost takeout measures by lowering the network's total cost of ownership but also demonstrate economic benefits resulting from cost savings in two different areas:

a. Communications Total Cost of Ownership – Savings that are quantifiable as a result of lowering the total cost of ownership to maintain the converged network;
b. Internet Business Solutions and Converged Applications – Costs that have been eliminated or avoided as a result of Internet enabling key business functions and leveraging converged applications to increase employee productivity that can be quantified as cost savings.

Large migrations to a converged network have been most successful and beneficial by approaching such an effort via a phased migration strategy. State of Missouri past experiences have demonstrated that all departments, buildings and employees that come under the direct jurisdiction of the state should be migrated within phases and that each

phase could have time frames of twelve to twenty-four months depending upon the technology solution. The State of Missouri also realizes that when large enterprises look to the deployment of a converged data and voice network, the most difficult aspect of such a migration can be overcoming “status quo” and cultural change.

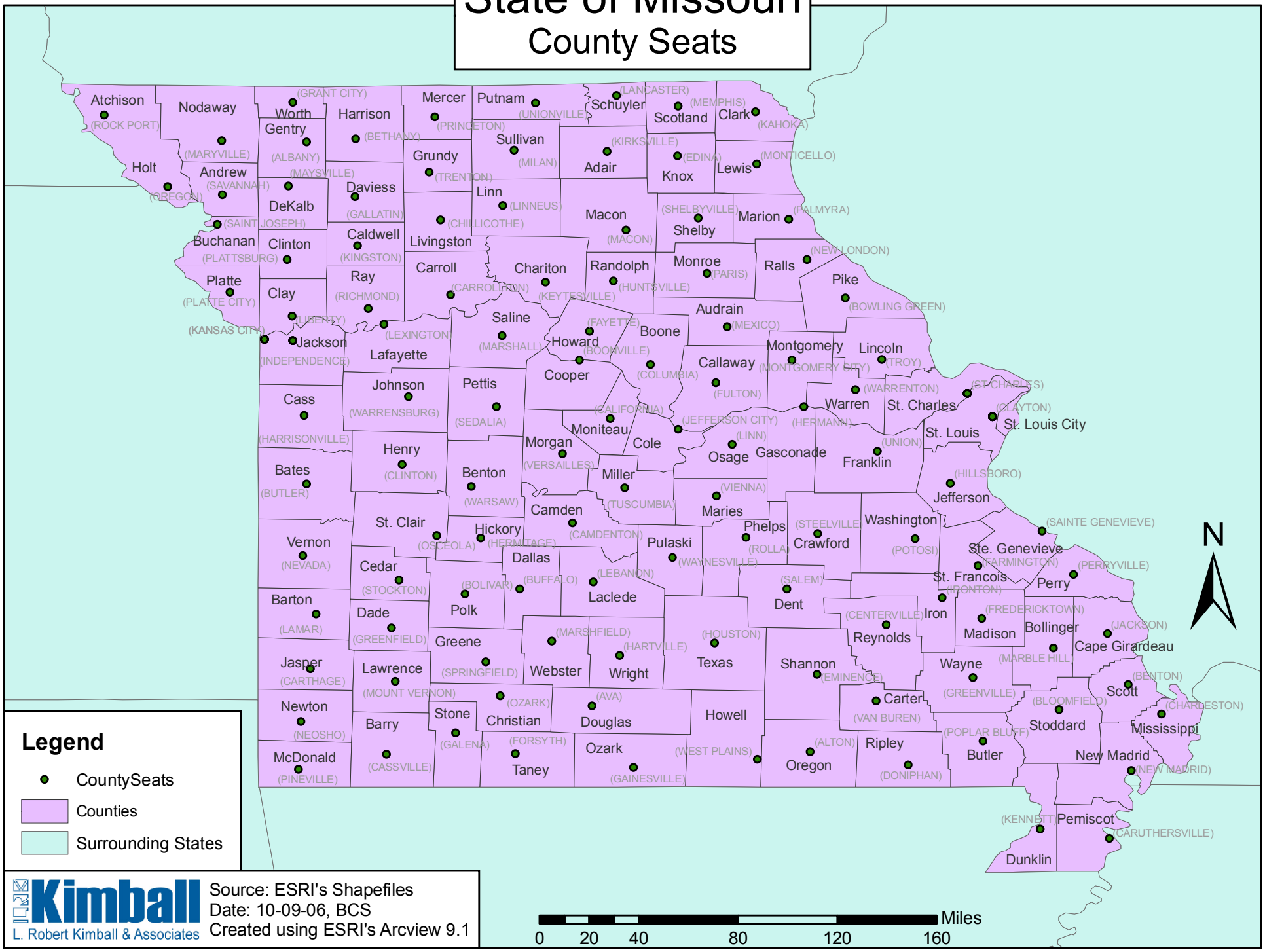
Pilot deployments launched for sixty to ninety days will be one vehicle to demonstrate a successful converged deployment and how converged applications can be used to simplify day-to-day operations, increase employee collaboration, reduce costs and increase productivity. Factors which the State of Missouri will consider when selecting a pilot environment include number of employees impacted, network quality of service readiness and department dispersion.

The state wishes to overcome the inefficiencies of disparate systems in department silos, increase communication between agencies, and improve government services. It is the State of Missouri’s goal to work closely with the successful offeror (referred to as “contractor”) of this RFP to leverage the investments already made by the state for its statewide converged network as defined in this RFP and to establish a shared cost/shared benefit model which would allow for the state to re-coup some of its investments and allow these entities to reduce their capital and operational costs.

APPENDIX B

Map of the County Seats

State of Missouri
County Seats



APPENDIX C

State of Missouri Funding Model

L. Robert Kimball & Associates, Inc. (Kimball) is pleased to provide the state of Missouri with a recommended statewide funding model for enhanced 9-1-1 (E9-1-1). We also take this opportunity to provide an alternate recommendation.

Primary Funding Recommendation

Kimball recommends that the Missouri General Assembly enact a statewide surcharge for E9-1-1 and establish a special fund. Existing legislation pertaining to county or municipal emergency communications/9-1-1 sales taxes or telephone surcharges would continue in effect until or unless the governing body should decide to participate in the State program. If a county or municipality wants to be eligible to receive grant funding from the State 9-1-1 Fund, it would have to discontinue collecting its local tax/surcharge. Governing bodies that intend to participate in the State program from its inception would need to keep its existing tax or surcharge in place for the period of time between the first service supplier remittances and the first disbursements to the counties.

A State E9-1-1 Board could be created to advise the state of Missouri's Office of Administration and administer the grant program; or the Office of Administration could convene a Grant Committee. An appropriate State board or committee may already exist that could be charged with this responsibility. Such a board or committee may need to be authorized in legislation and the usual requirements for geographic diversity, rural and urban 9-1-1 systems/PSAPs, gender representation, etc., should be included.

The Fund should be administered on the State's fiscal year cycle.

Legislation should be enacted to require the revenue rate to be examined annually and adjusted as needed.

Language requiring an annual audit of each county's use of the remittances returned to them and any grants received from the State should also be enacted.

Authorized uses of the funds should be enacted.

Minimum PSAP standards should be adopted.

Surcharges should be collected by the service suppliers, to include wireline, wireless, Voice over Internet Protocol (VoIP) (or Cable Voice, as the cable providers prefer to call their VoIP service), and prepaid services of any sort. The language should be technology neutral. Surcharges should be remitted to the Missouri Department of Revenue on a form created for that purpose. The form should include the following information at a minimum:

- The residential wireline count for each county in which the service supplier has subscribers;
- The wireless line[1] count for each county in which the service supplier has subscribers;

[1] "Line" is used loosely in the non wireline context to refer to a line equivalent capable of accessing 9-1-1.

- The prepaid wireless line count for each county in which the service supplier has subscribers;
- The VoIP line count for each county in which the service supplier has subscribers;
- The prepaid VoIP line count for each county in which the service supplier has subscribers;
- The non-Centrex business line count for each county in which the service supplier has subscribers;
- The Centrex line count for each county in which the service supplier has subscribers (Many funding models apply the full surcharge up to ten lines. For Centrex services with more than that, a formula is applied and in that case, the form would require the service supplier to note the number of Centrex lines less than the threshold and separately note the number of Centrex lines more than the threshold);
- The PRI line count for each county in which the service supplier has subscribers;
- "Other" for other (future) types of services capable of accessing 9-1-1; with space for the service supplier to indicate the line count for each county in which it has subscribers.

The Department of Revenue should manage the remittances and the E9-1-1 Fund. The Department of Revenue would send the statutory percentage back to each county on a monthly or other basis. The Department of Revenue would send another statutory percentage into a Grant Fund. The State E9-1-1 board or committee would distribute the bulk of the Grant Fund monies to the counties to help them with service enhancements and upgrades; a small amount would be budgeted to cover the agency's costs to run the program. Anything not spent at the end of the fiscal year would be returned to the counties on a pro rata basis.

Based on information obtained from the counties, Local Exchange Carriers (LECs), or the State auditor's website, Kimball determined that the aggregate 9-1-1 revenue (sales taxes, telephone surcharges, or general funds) is approximately $34,000,000 a year. We note for the record that we were not able to obtain revenue information for every county, although we do have it for the majority.

Using information that the FCC maintains and publishes annually, Missouri's subscriber line count is estimated to be 7,035,673.[2] The Census Bureau's 2005 (the last year for which estimates are available) report estimates Missouri's population at 5,800,310.

Kimball estimates that a statewide surcharge rate of $1.00 per access per month could be expected to yield $84,428,078. If 60 percent were delivered back to the counties, counties in the aggregate could expect to receive approximately $50,656,847. That is $16,656,847 more than the current revenue data we have. Please keep in mind that we were not able to obtain revenue information for all counties, and some counties do not presently have a 9-1-1 funding mechanism. If 30 percent were put into a state Grant Fund and distributed to the counties or Public Safety Answering Points (PSAPs) in the form of grants, an estimated additional $25,328,424 would be available to them. The State could design its grant program to favor consolidation and regionalization projects as well as urgently needed upgrades. The remaining 10 percent from the Grant Fund could be used by the State to administer the program. The amount available is estimated to be $8,442,808. Anything not spent at the end of the fiscal year could be distributed on a pro rata basis among the counties.

[2] Wireline subscribers equals 3,270,420; wireless subscribers equals 3,732,549; Kimball assumed VoIP subscribers at 1 percent of wireline, or 32,704.

Using the same distribution ratio, a surcharge rate of 75 cents per access per month could be expected to yield $63,321,059. The 60 percent returned to the counties would amount to approximately $37,992,635, still more than the aggregate Kimball ascertained from its research. The amount put into the State Grant Fund for grants would amount to approximately $18,996,318; the amount left over in the Grant Fund to offset State administrative costs would be approximately $6,332,106. Anything not spent at the end of the fiscal year could be distributed on a pro rata basis among the counties.

Using the same distribution ratio, a surcharge rate of 50 cents per access per month could be expected to yield $42,214,039. The 60 percent returned to the counties would amount to approximately $25,328,424, which is less than the aggregate Kimball has estimated on the basis of information in hand. There would be $16,885,615 left for the State Grant Fund to distribute as grants and to offset the administrative costs to administer the Fund. Anything not spent at the end of the fiscal year could be distributed on a pro rata basis among the counties.

Alternate Funding Recommendation

As an alternative, the State could enact a statewide surcharge exempting wireline access, but including all others. The counties would keep their current revenues and continue to use them as they do now. Sixty percent of the statewide surcharge would be returned to the counties. The remaining 40 percent would be deposited into a statewide Grant Fund and used for grants to counties or PSAPs and to cover the agency's costs to run the program. Anything not spent at the end of the fiscal year could be distributed to the counties on a pro rata basis.

This approach, because it would increase the amount of funds available at the local level, would give local governing bodies an opportunity to reduce the local tax or surcharge burden if they wished. Regardless, the net result would be increased opportunities to improve 9-1-1 services in Missouri than would be possible with the present funding mechanisms.

All else would remain as outlined in our primary recommendation.

Using the information published by the FCC, combined with our estimate of Missouri's VoIP subscriber base at 1 percent of wireline, Missouri could expect the following revenues for a selection of surcharge rates. More funding formulas are included in Appendix C.

Based on an estimated subscriber line count of 3,765,253, a statewide surcharge rate of $1.00 per access per month could be expected to yield $45,183,036. If 60 percent were delivered back to the counties, counties in the aggregate could expect to receive approximately $27,109,822 in additional revenues. That would leave approximately $18,073,214 for the State to use to fund the grant program and cover the cost to operate the program.

Using the same distribution ratio, a surcharge rate of 75 cents per access per month could be expected to yield $33,887,277. The 60 percent returned to the counties would amount to approximately $20,332,366. The amount put into the State Grant Fund would amount to approximately $13,554,911.

Using the same distribution ratio, a surcharge rate of 50 cents per access per month could be expected to yield $22,591,518. The 60 percent returned to the counties would amount to approximately $13,554,910, which is a 40 percent increase over current revenues. There would be approximately $9,036,608 left for the State Grant Fund.

Considerations

Information gathered for the report entitled *Costs and Revenues Associated with a Statewide IP-Enabled Network* show that the cost to connect LEC selective routers to the State's IP network would be approximately $2,730,000. In addition there would be approximately $1,344,000 in annual recurring costs. These costs include routers, gateways, and connectivity.

Information gathered for the report entitled *Costs and Revenues Associated with a Statewide IP-Enabled Network* show that the cost to connect the LEC's Automatic Location Identification (ALI) databases to the State's IP network would be approximately $189,000. In addition, there would be approximately $336,000 in annual recurring costs. Again, these costs include routers, gateways, and connectivity.

Finally, information gathered from PSAPs and LECs as presented in the report entitled *PSAP Needs Analysis* show that the cost to PSAPs to connect to the LECs' selective routers is approximately $790,000 a year. Kimball notes that this figure is based solely on the information provided to us. There are gaps where no information was provided or available; in some instances PSAPs provided annual costs and in other instances PSAPs provided monthly costs. If a PSAP did not indicate whether the information was annualized or monthly, it was not always possible to make a judgment. For the purposes of this recommendation, we assume that the actual costs are double what we know, or $1,580,000 a year. Neither LECs nor PSAPs provided us with one-time trunking costs. Regardless, trunking levels, and therefore trunking costs, are lower in a statewide IP network environment, as we know from the State of Indiana's experience. But, for the purposes of illustration, we will keep the price estimate as outlined above.

The estimated one-time costs for selective router and ALI database connectivity are approximately $2,919,000. The estimated combined annual recurring costs for selective router, ALI database, and PSAP connectivity is approximately $3,260,000. A statewide surcharge of $1.00 per access could be expected to generate $84,428,078, and if 60 percent or $50,656,847 were sent back to the counties, there should be ample funds to cover these costs.

Because a statewide ALI database was outside the scope of this assessment project, we did not gather information about the one-time costs to implement a statewide ALI database. However, based on existing recurring costs incurred by the PSAPs, annual recurring costs for a statewide ALI database could be expected to be approximately $2,943,378. We note that there may be additional costs from the LECs to provide customer record information and to perform daily updates to the statewide ALI database. If the State should decide it wants to provide or procure ALI database services at a State level, it should develop an RFI in an effort to obtain pricing information; the surcharge level may need to be adjusted depending on the results.

Kimball's primary funding recommendation option would have potential impacts on counties. Assuming a statewide funding mechanism and no county funding mechanism, some counties

could see their revenues increase, and some could see their revenues decrease. Sales tax counties currently tax wireless and wireline sales, while the surcharge counties assess the tax on wireline only. These latter counties should find any loss offset by the additional revenue from wireless and VoIP, which they previously had not had.

Kimball's alternate funding recommendation would increase the amount of money available to counties, and simultaneously enable the State to achieve its goals. In order to ensure accountability, the State would have to adopt minimum standards and be prepared to audit the use of these funds.

Suggestions for a PSAP Grant Program

The primary goal of the program would be to provide financial assistance to counties or PSAPs for the following priorities (priorities would be established annually and announced when the grant cycle is announced):

- Regionalization[3] or consolidation of 9-1-1 service initiatives to bring 9-1-1 to the 21 counties that do not currently have it; or
- Regionalization or consolidation of 9-1-1 service in counties that do currently have it for the purposes of achieving greater efficiency in costs and service delivery;
- Projects that enhance cross-jurisdictional information sharing and collaboration among PSAPs;
- System replacement, enhancements or upgrades;
- PSAP training and staff development (certifications, courses, conference attendance, etc.);
- Public education.

The State should establish rules and requirements governing the PSAP grant program, the types of projects eligible for funding, the grant application forms, and instructions for completing and submitting them, reporting and auditing requirements, etc. Financial need should be heavily weighted so that the poorer counties have priority.

Any Missouri county or primary PSAP should be eligible to apply for and receive these funds.

[3] A regional initiative could be defined as a project or projects involving multiple primary PSAPS that represent no less than two cities, two counties, or combination of at least one city and one county. A regional initiative could also mean a single primary PSAP that serves multiple counties or cities or a project involving the consolidation of two or more primary PSAPs. Consolidation, as it relates to regional initiatives, could range from the consolidation of components that support E-911, such as shared equipment, shared resources, and the co-location of technology applications and infrastructure to the physical merger and combined management of separate PSAPs. All participants must benefit directly from the activities implemented with the grant award.

Care must be taken to ensure that a primary PSAP does not submit more than one funding request during the same grant cycle. For example, if a primary PSAP submitted a grant request as an individual PSAP and as part of a regional initiative, that PSAP could be requesting funding in two separate applications during the same grant cycle.

A not-to-exceed cap should be placed on awards, e.g., $100,000 for an individual primary PSAP or $250,000 for a regional initiative. Grant recipients should be required to provide a match. Eighty percent State to twenty percent PSAP is typical. Waivers could be offered on the basis of need; stipulations could be attached.
A grant application cycle should be established and announced annually.

APPENDIX D

Missouri Surcharge Worksheet

Missouri Surcharge Worksheet
Option 1

Wireline Subscribers *	3,270,420								
Wireless Subscribers *	3,732,549								
VOIP Subscribers **	32,704								
Total	**7,035,673**								
Monthly Per User Fee of:	$0.50	$0.75	$0.80	$1.00	$1.25	$1.50	$1.75	$2.00	
Annual Estimated Revenue	$42,214,039.20	$63,321,058.80	$67,542,462.72	$84,428,078.40	$105,535,098.00	$126,642,117.60	$147,749,137.20	$168,856,156.80	

Current Revenue Reported **$34,143,992.00**

* Based on the FCC Local Telephone Competition Report; Status as of December 31, 2005
** Based on a conservative estimate of 1% of the wireline Subscribers

Missouri Surcharge
Worksheet
Option 2

Wireless Subscribers *	3,732,549								
VOIP Subscribers **	32,704								
Total	**3,765,253**								
Monthly Per User Fee of:	$0.50	$0.75	$0.80	$1.00	$1.25	$1.50	$1.75	$2.00	
Annual Estimated Revenue	$22,591,518.00	$33,887,277.00	$36,146,428.80	$45,183,036.00	$56,478,795.00	$67,774,554.00	$79,070,313.00	$90,366,072.00	

Current Revenue Reported **$34,143,992.00**

* Based on the FCC Local Telephone Competition Report; Status as of December 31, 2005
** Based on a conservative estimate of 1% of the wireline Subscribers